

FIG. 1A
Prior Art

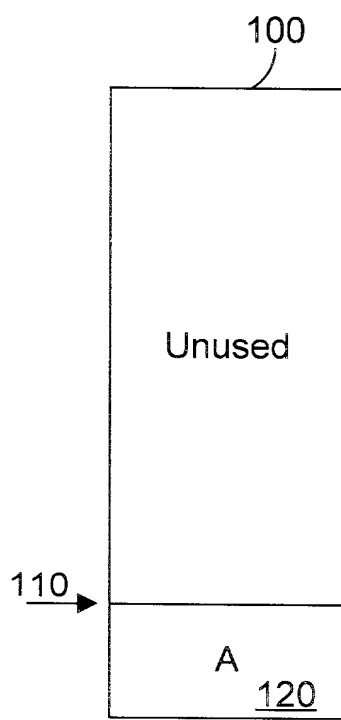


FIG. 1B
Prior Art

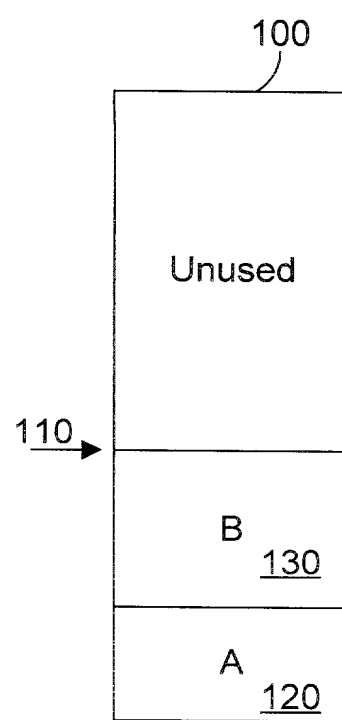


FIG. 1C
Prior Art

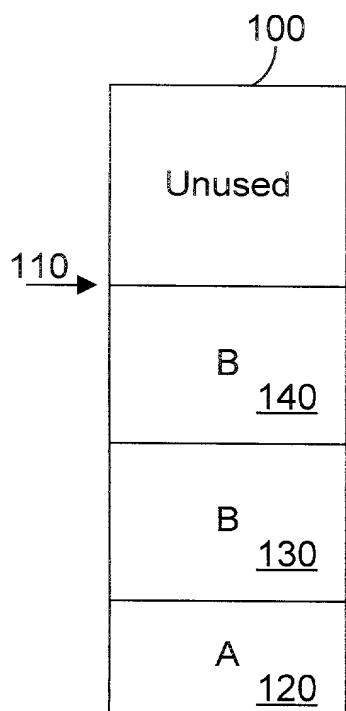


FIG. 1D
Prior Art

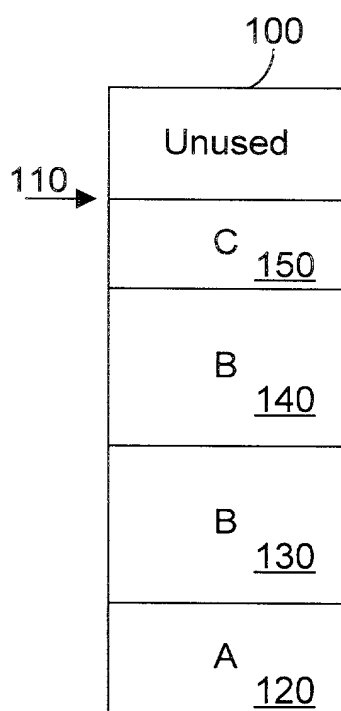


FIG. 1E
Prior Art

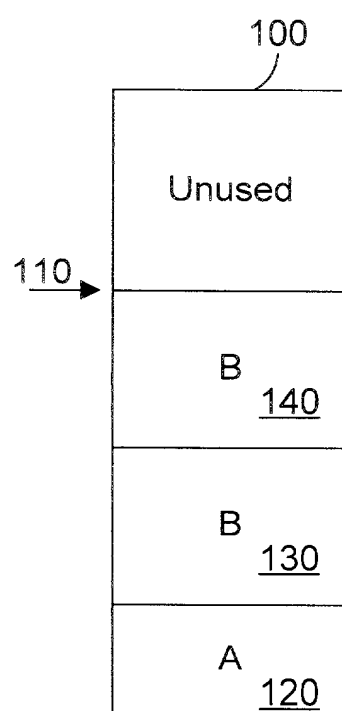


FIG. 1F
Prior Art

C++
A() {
 Square k;
 :
 :
}

FIG. 2A Prior Art

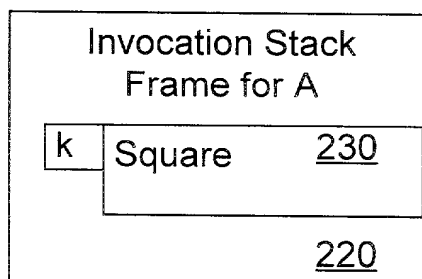


FIG. 2B Prior Art

Java
A() {
 :
 :
 Square k = new Square();
 :
 :
}

FIG. 3A Prior Art

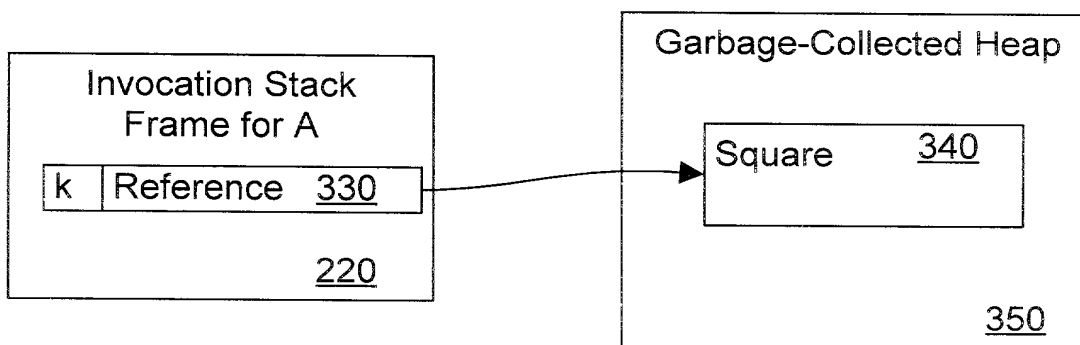


FIG. 3B Prior Art

FIG. 3C Prior Art

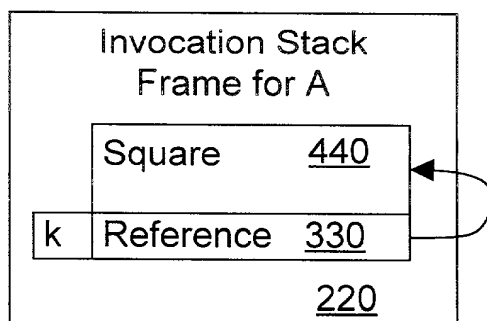


FIG. 4 Prior Art

```
A() {    NO ESCAPE
  ⋮
  Square k = new Square();
  ⋮
}
```

FIG. 5A Prior Art

```
static Square classVar;
A() {    GLOBAL ESCAPE
  ⋮
  Square k = new Square();
  classVar = k;
  ⋮
}
```

FIG. 5B Prior Art

```
Square A() {    ARG ESCAPE
  ⋮
  Square k = new Square();
  return k;
  ⋮
}
```

FIG. 5C Prior Art

```
A(List L) {    ARG ESCAPE
  ⋮
  Square k = new Square();
  L.addToList(k);
  ⋮
}
```

FIG. 5D Prior Art

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"0059860"

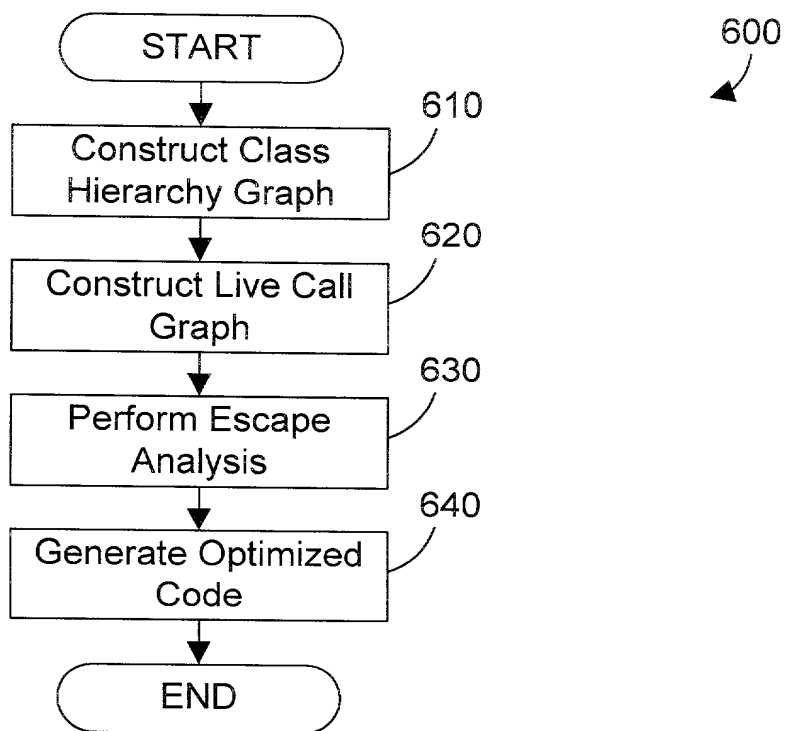
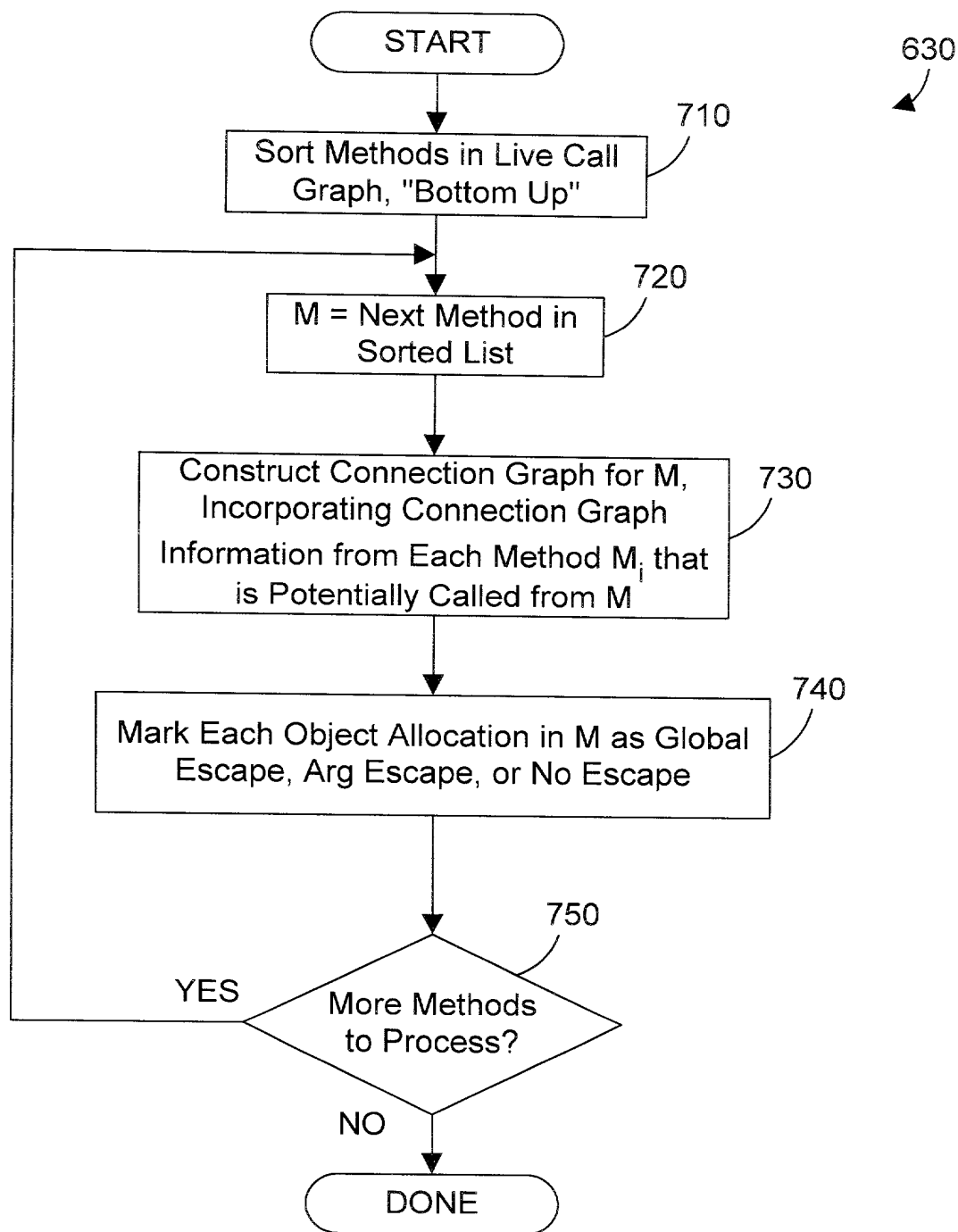


FIG. 6 Prior Art

FIG. 7 Prior Art

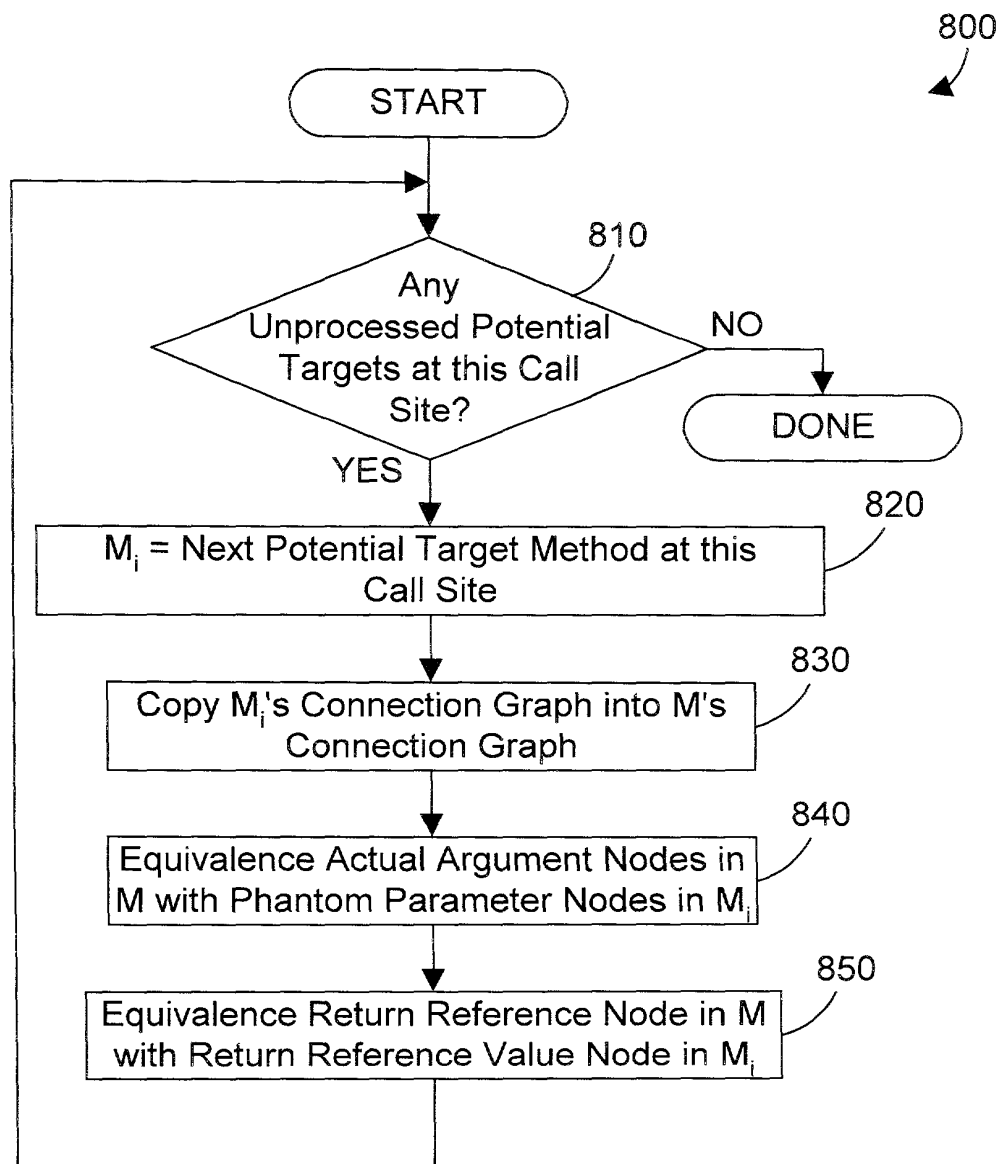


FIG. 8 Prior Art

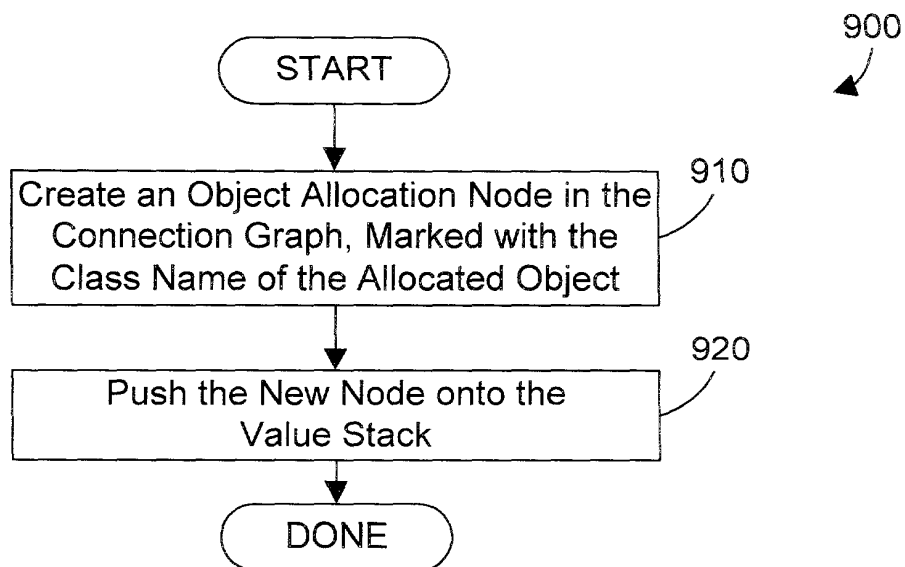


FIG. 9 Prior Art

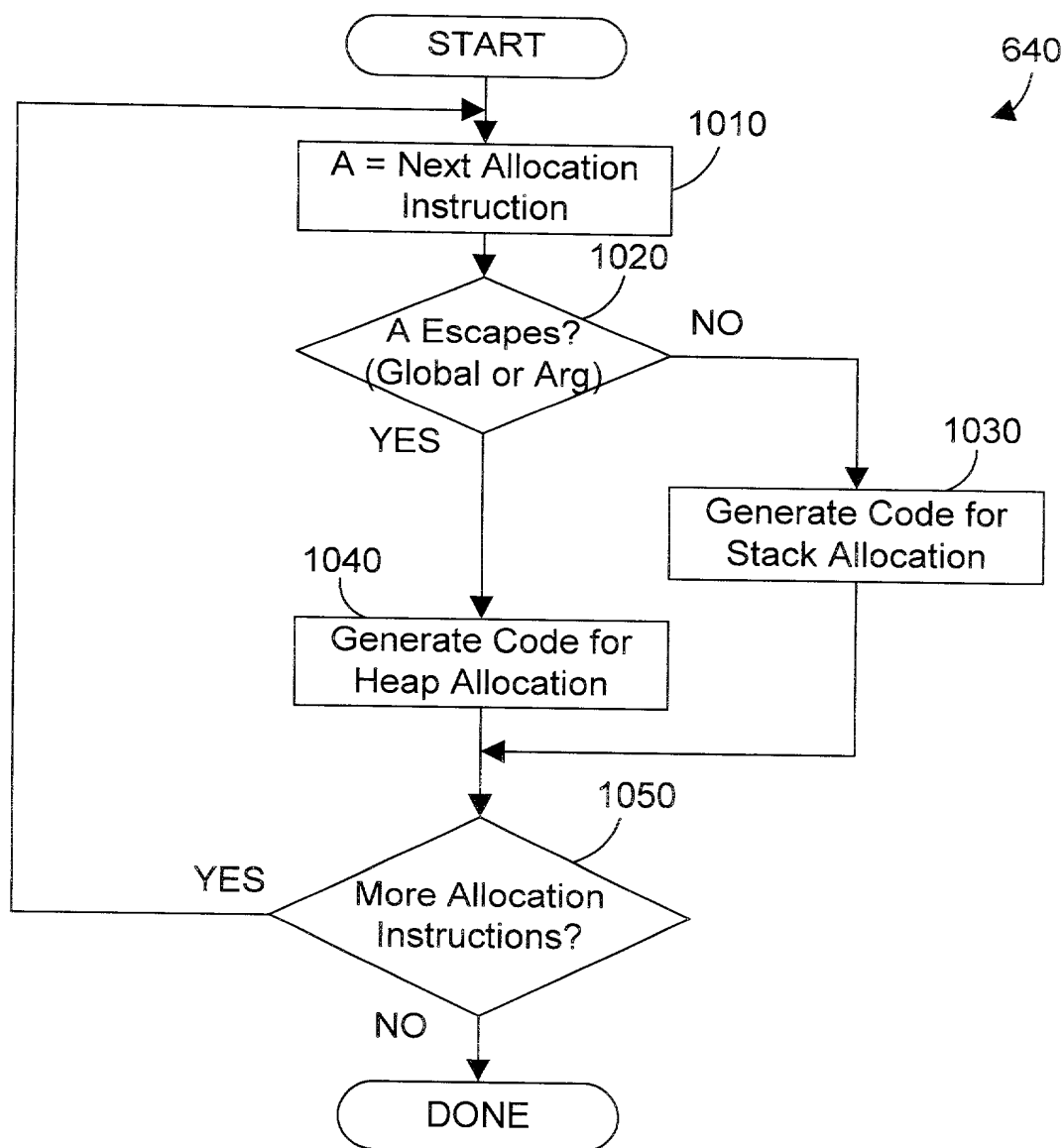


FIG. 10 Prior Art

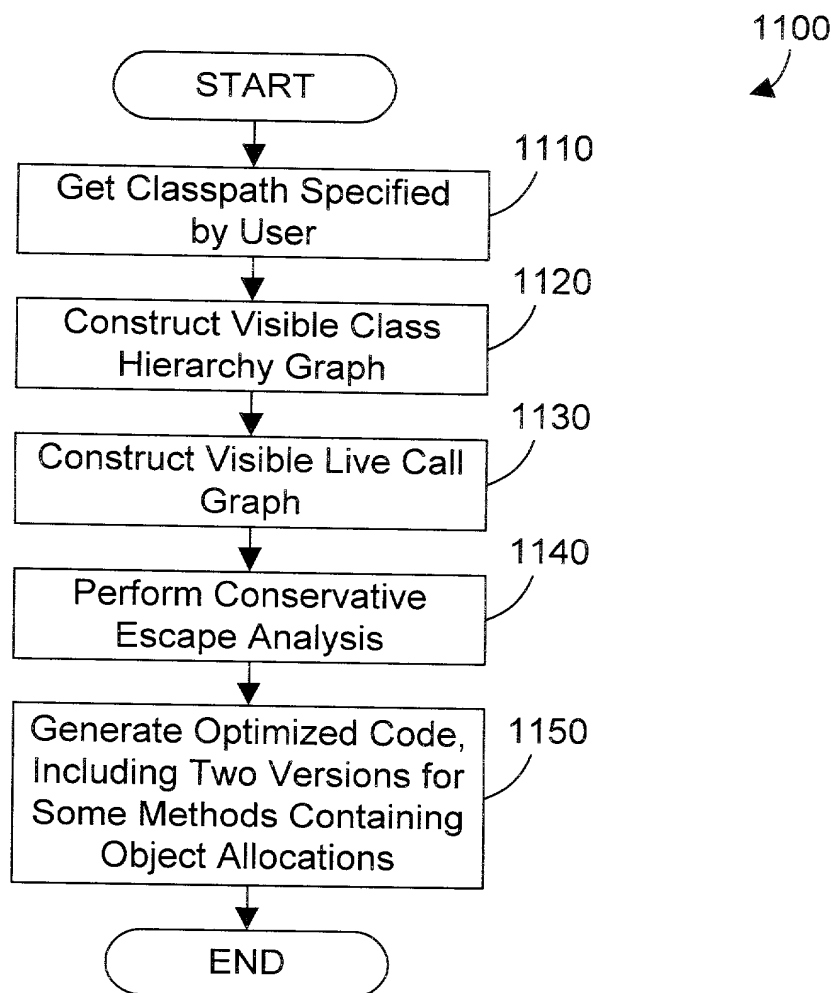


FIG. 11

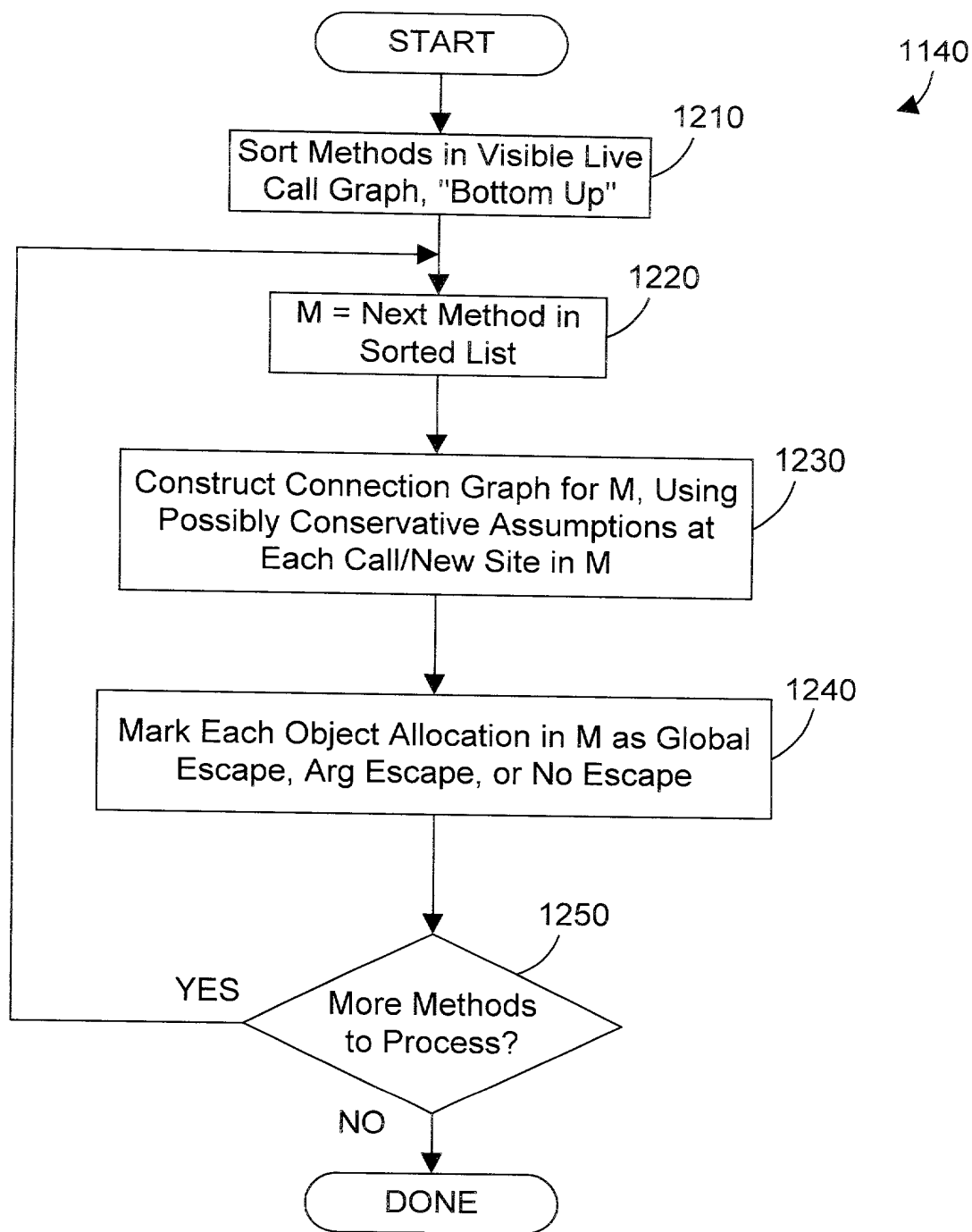


FIG. 12

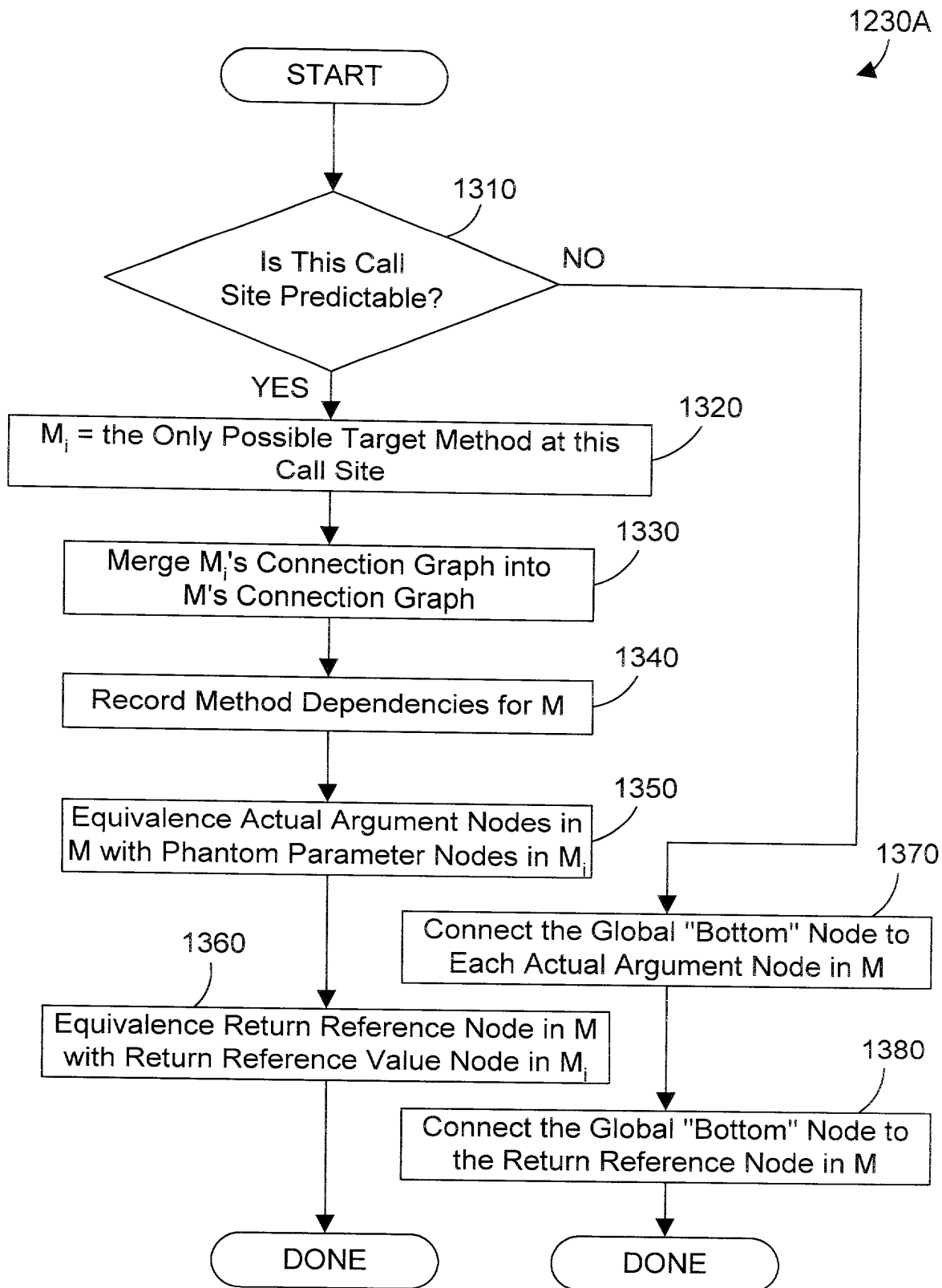


FIG. 13

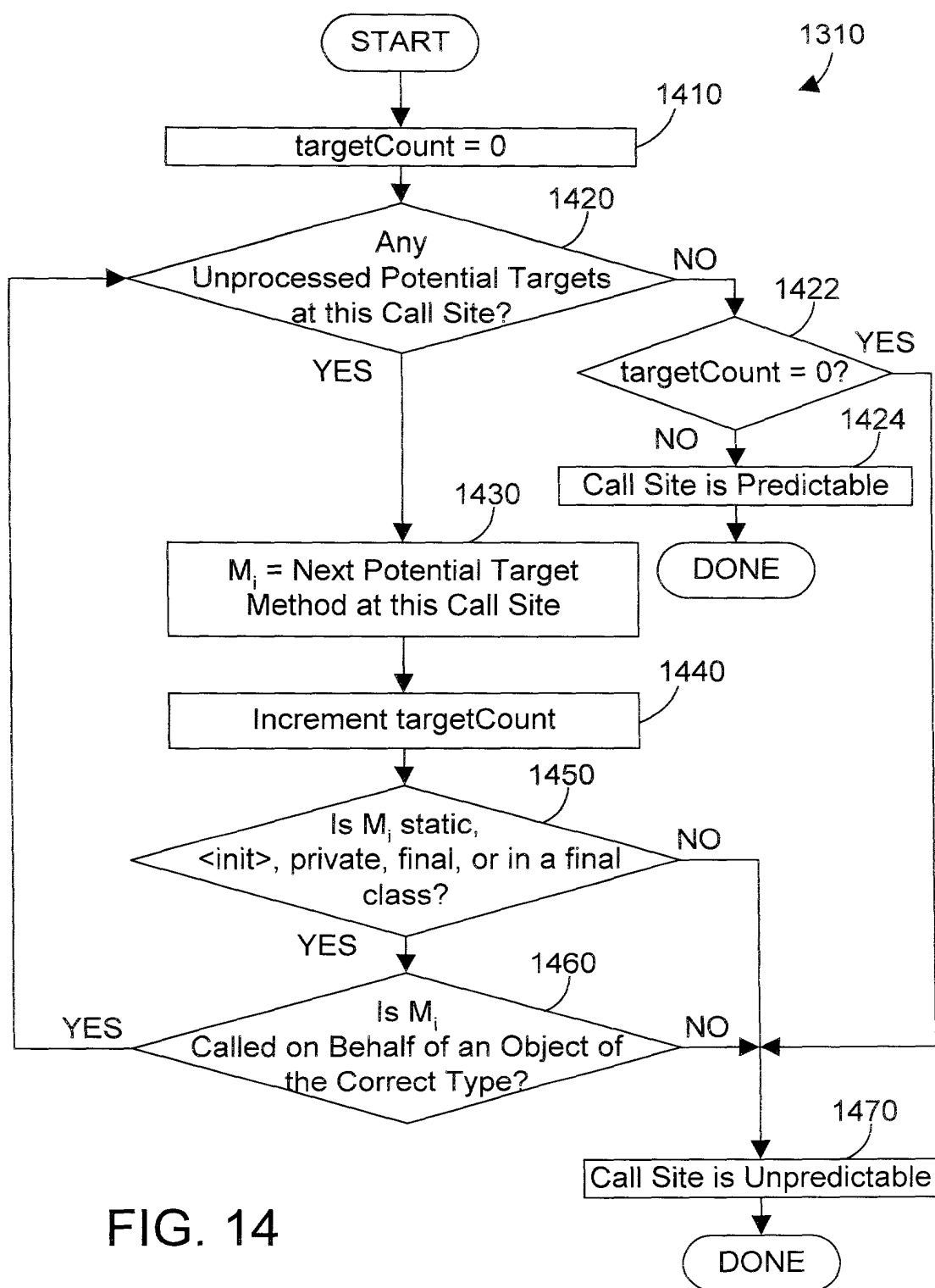


FIG. 14

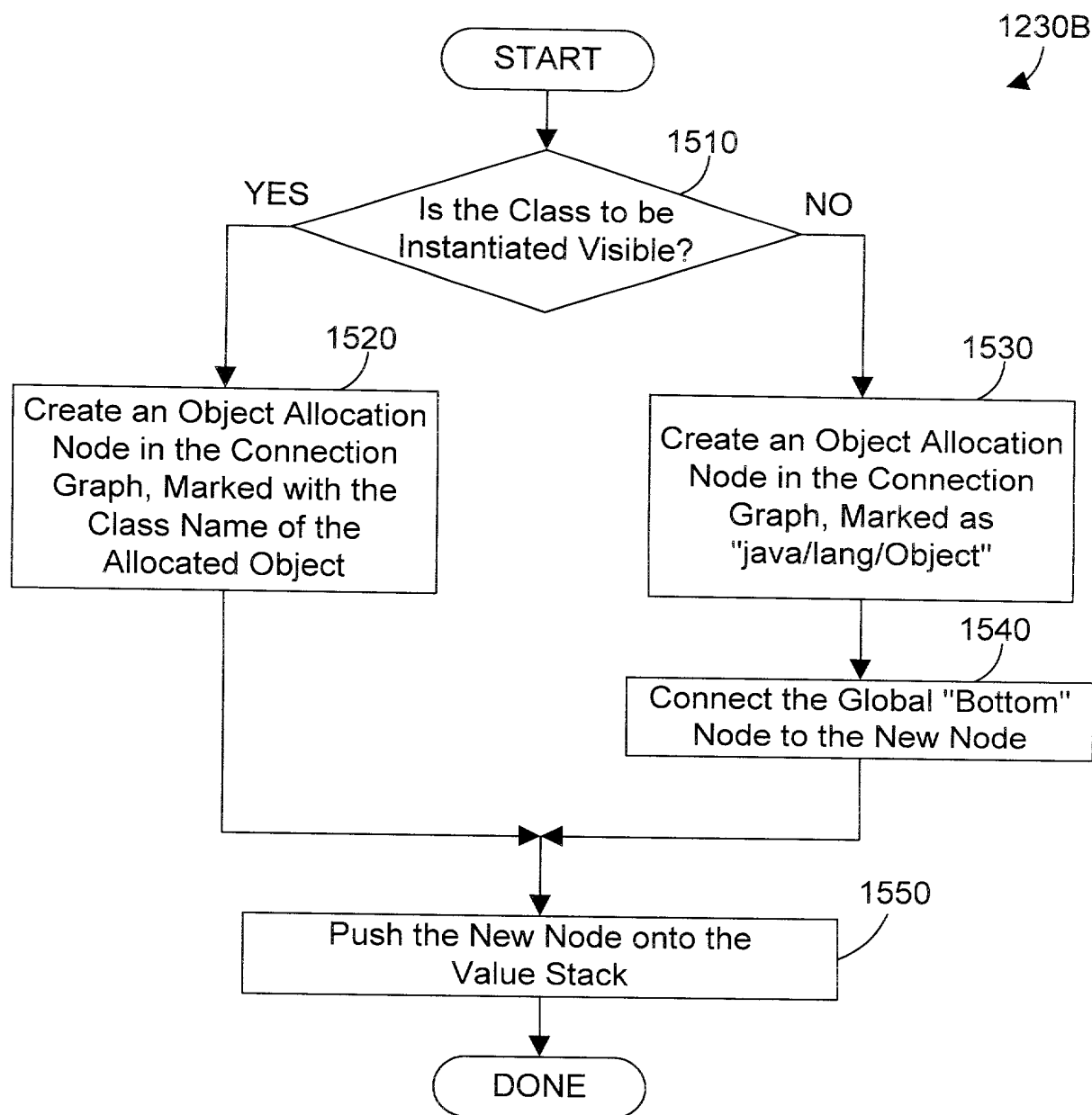


FIG. 15

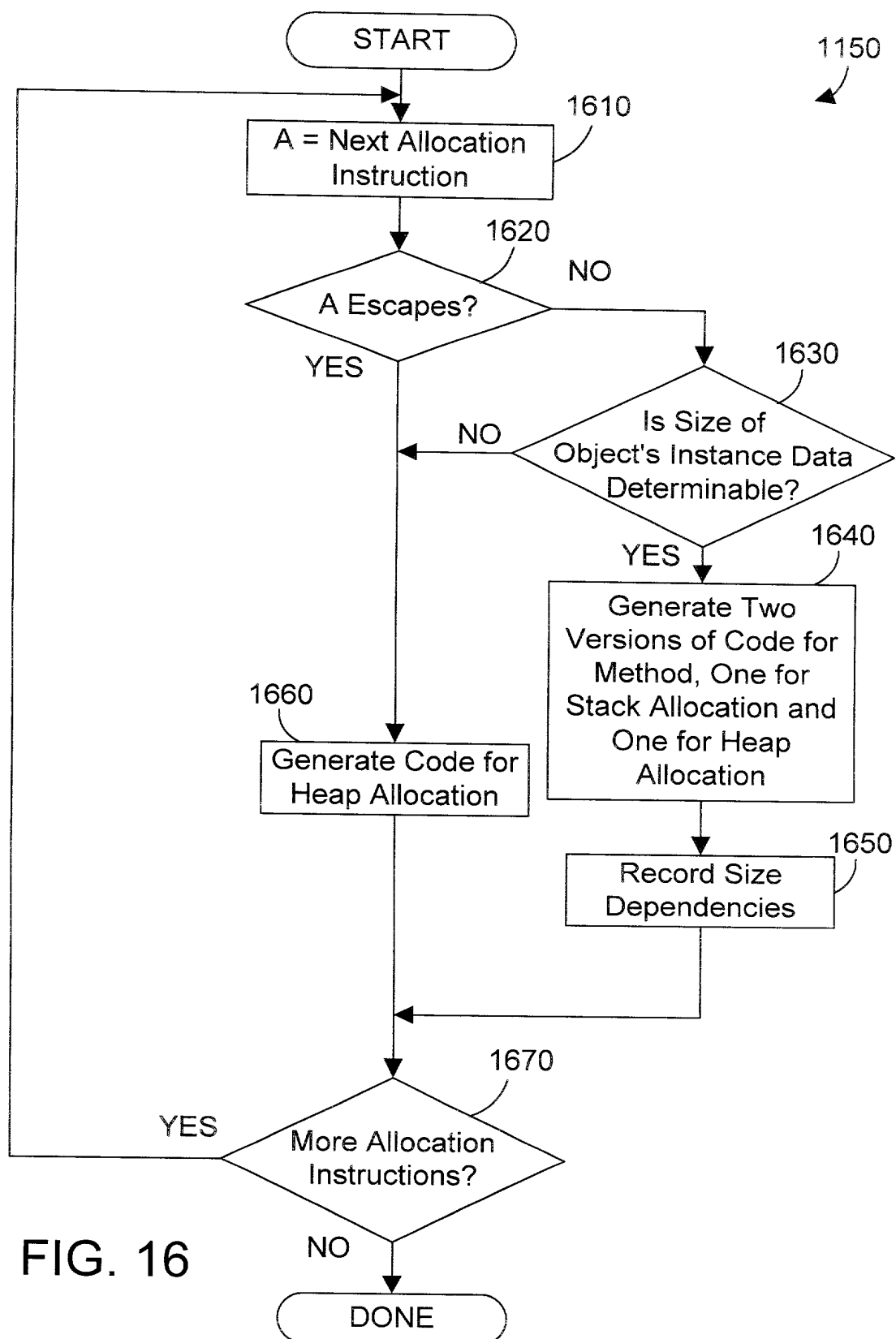


FIG. 16

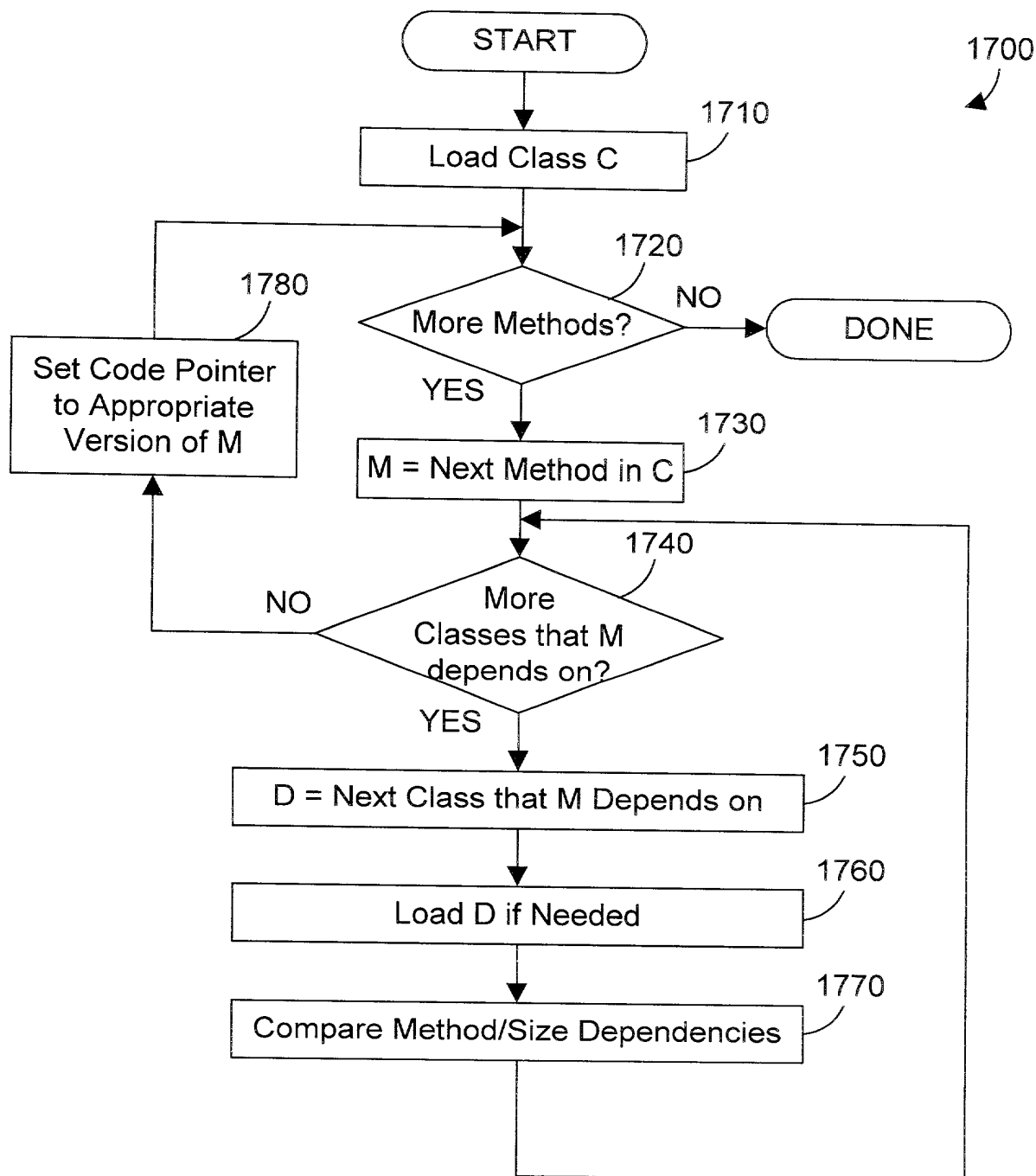


FIG. 17

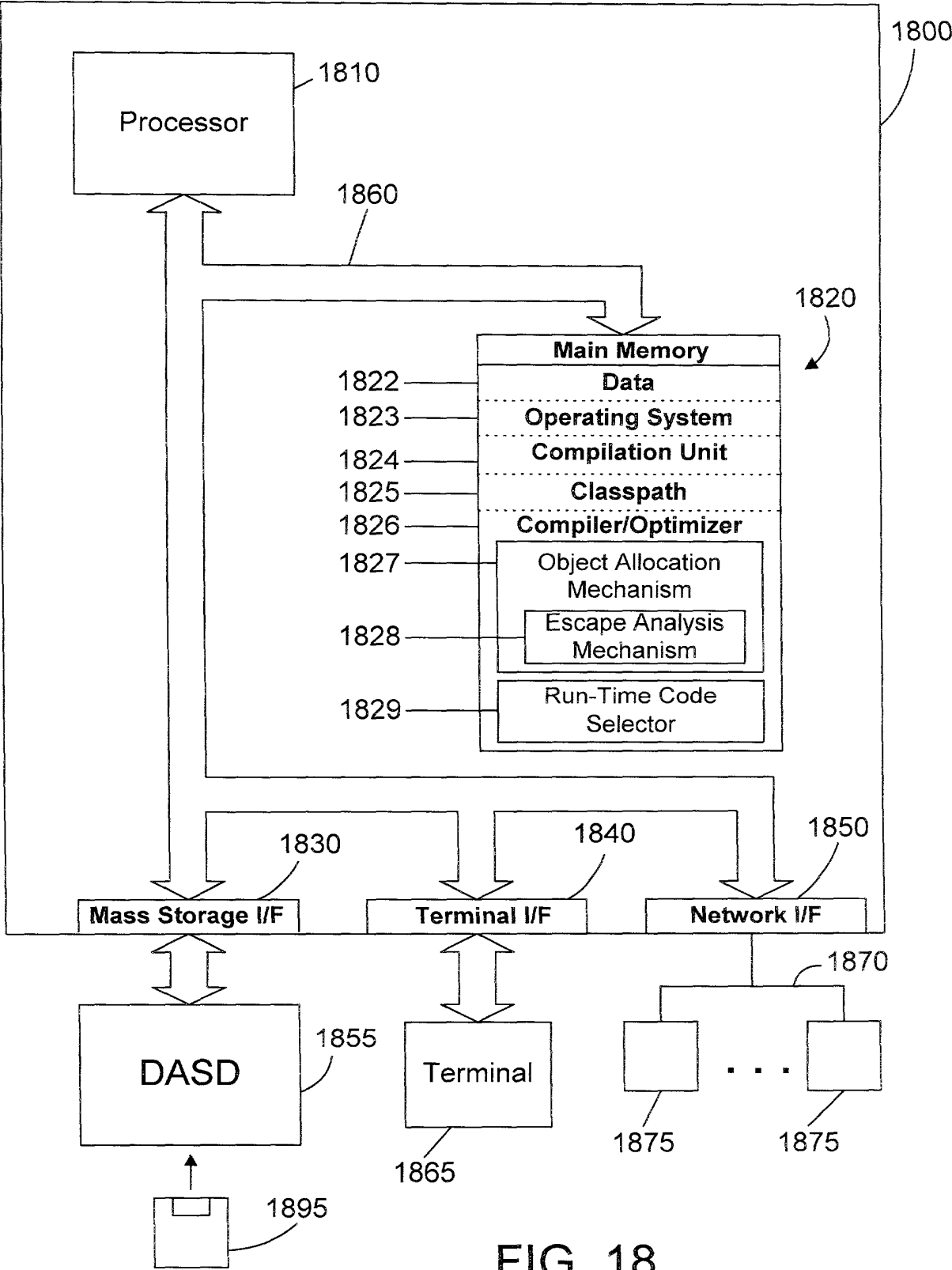


FIG. 18


```
class Instrument {
    abstract void identify();
};

final class Intensity {
    Intensity(int t, int f) {privT=t; privF=f;}
    int tautness() {return privT;}
    int force() {return privF;}
    private int privT;
    private int privF;
};

class WindInstrument extends Instrument {
    final void identify() {System.out.println("Wind instrument");}
    void blow(int force) { . . . }
    abstract void setEmbouchure(int tautness);
    abstract void loudHighNote(Intensity i);
}

final class Valve {
    private Boolean depressed;
    void depress() {depressed=true;}
    void release() {depressed=false;}
};

class BrassInstrument extends WindInstrument {
    private Valve[ ] valves;
    BrassInstrument (Valve[ ] v) {valves=v;}
    private Valve getValve(int i) {return valves[i];}
    void depressValve(Valve which) {which.depress();}
    final void setEmbouchure(int tautness) { . . . }
    void loudHighNote(Intensity i) {
        depressValve(getValve(2));
        setEmbouchure(i.tautness());
        blow(i.force());
    }
};
```

FIG. 19A

```

class WoodwindInstrument extends WindInstrument {
    void depressKey(int which) { . . . }
    void setEmbouchure(int tautness) { . . . }
    void loudHighNote(Intensity i) {
        depressKey[4];
        setEmbouchure(i.tautness());
        blow(i.force());
    }
};

```

```

class Drumstick { . . . };

```

```

class Mallet extends Drumstick { . . . };

```

```

public class Player {
    void messAroundWith(Instrument ax) {
        ax.identify();
        Intensity inten = new Intensity (6,88); //S1
        ax.loudHighNote(inten);
    }
    void beatDrum(Drum drum) {
        Intensity inten = new Intensity(1,1); //S2
        Drumstick m = new Mallet();           //S3
        drum.strikeWith(m);
    }
};

```

FIG. 19B

```

class PercussionInstrument extends Instrument { . . . }

```

```

class Drum extends PercussionInstrument {
    final void strikeWith(Drumstick d) {System.out.println("Boom"); }
};

```

```

class Percussionist extends Player {
    void acquireEquipment() {
        Drum d = new Drum(); //S4
        Mallet m = new Mallet(); //S5
    }
};

```

FIG. 20

09865001-052401

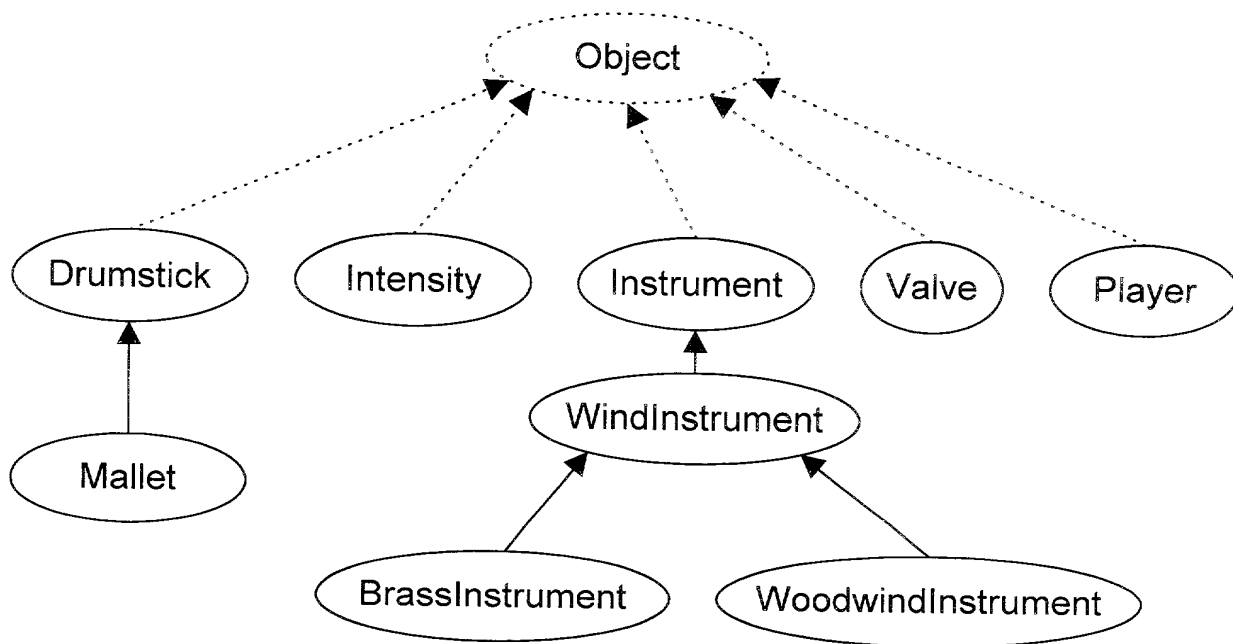


FIG. 21

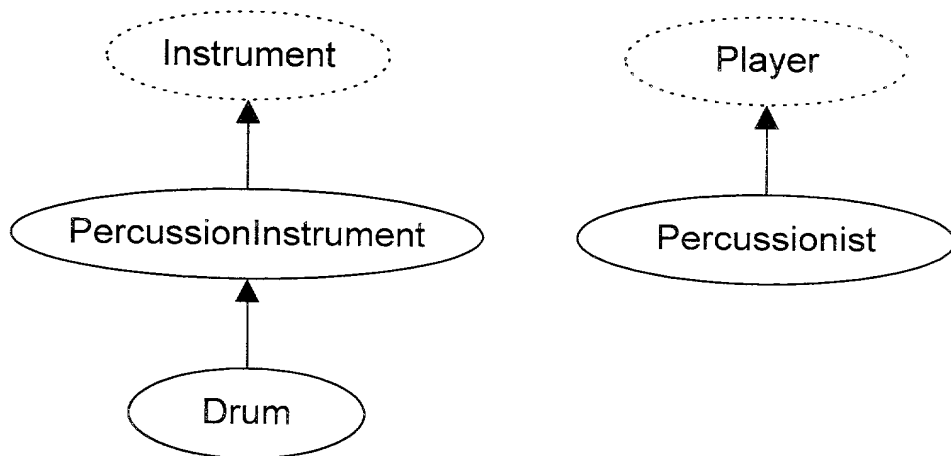


FIG. 22

2300

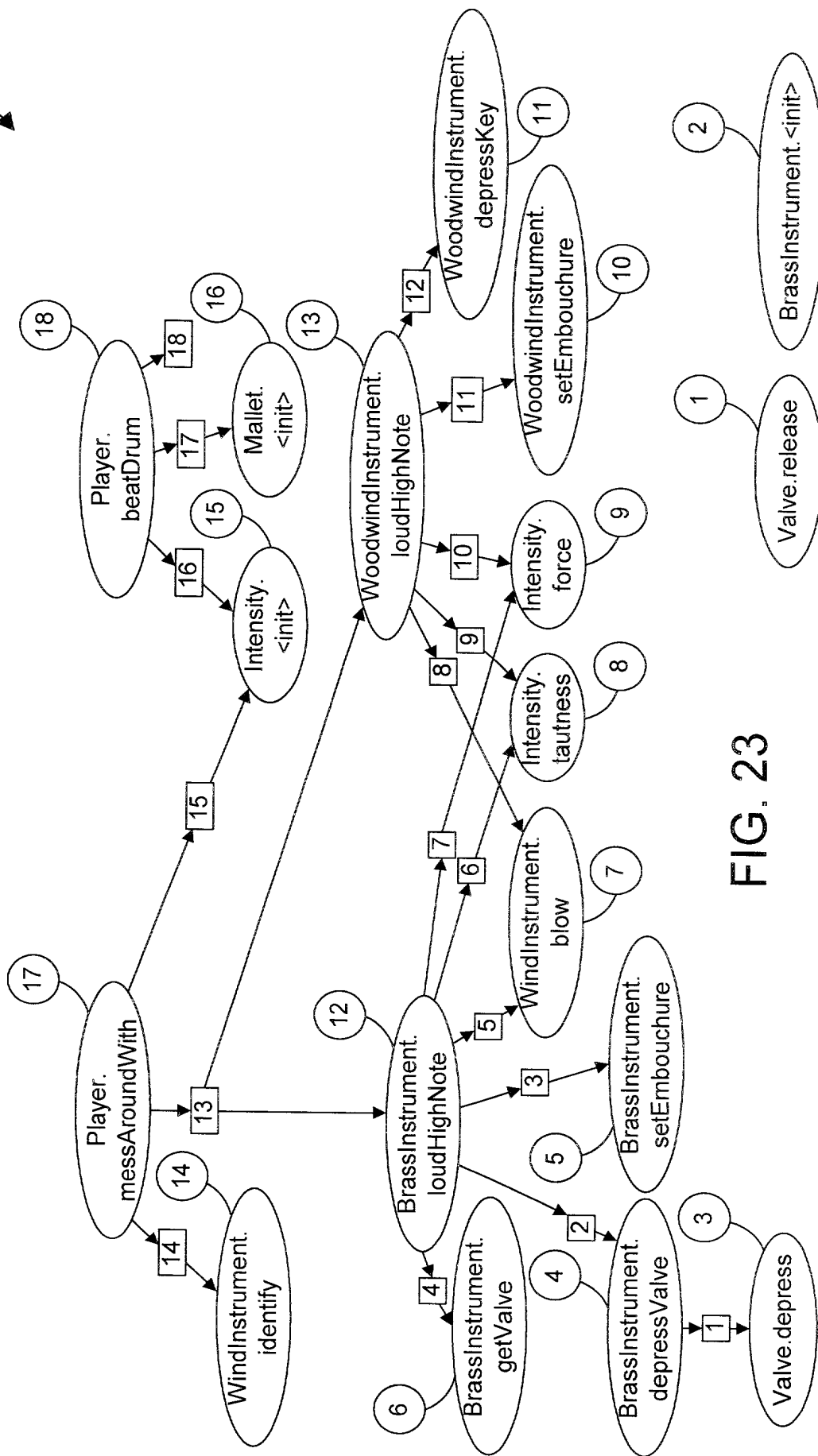


FIG. 23

FIG. 23

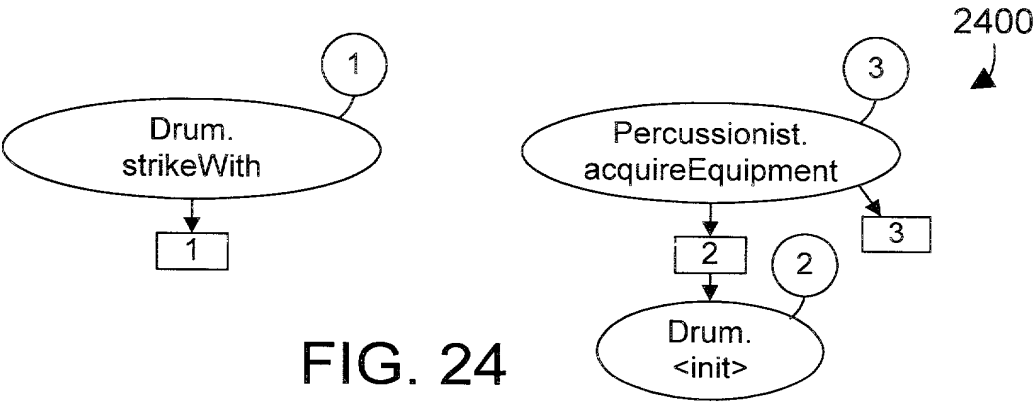
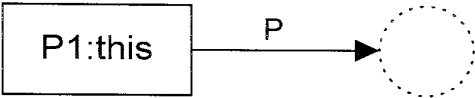
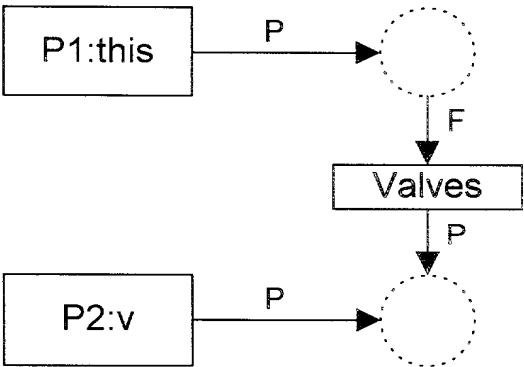


FIG. 24



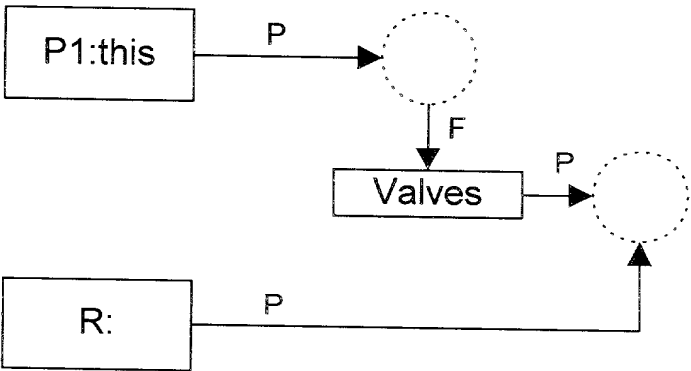
- (1) Valve.release
- (3) Valve.depress
- (5) BrassInstrument.setEmbouchure
- (7) WindInstrument.blow
- (8) Intensity.tautness
- (9) Intensity.force
- (10) WoodwindInstrument.setEmbouchure
- (11) Woodwindinstrument.depressKey
- (14) WindInstrument.identify
- (15) Intensity.<init>
- (16) Mallet.<init>

FIG. 25A



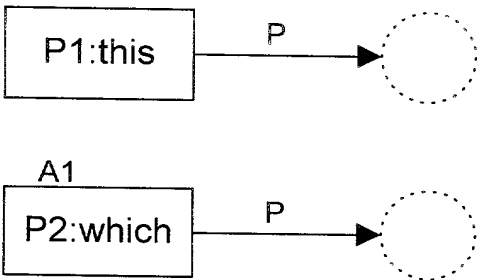
- (2) BrassInstrument.<init>

FIG. 25B



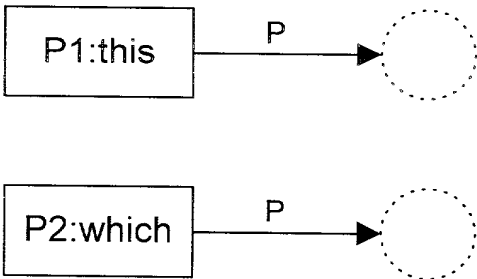
(6) BrassInstrument.getValve

FIG. 25C



Before Call to Valve.depress

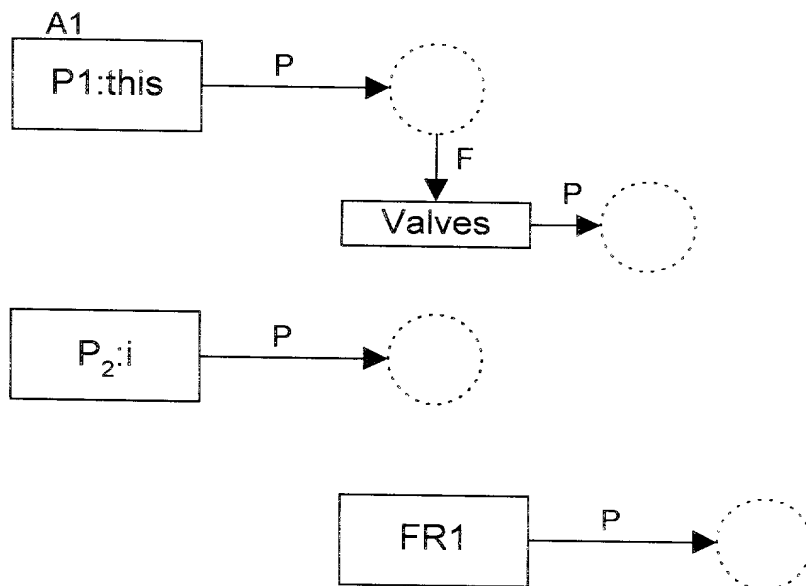
FIG. 26A



Final Connection Graph

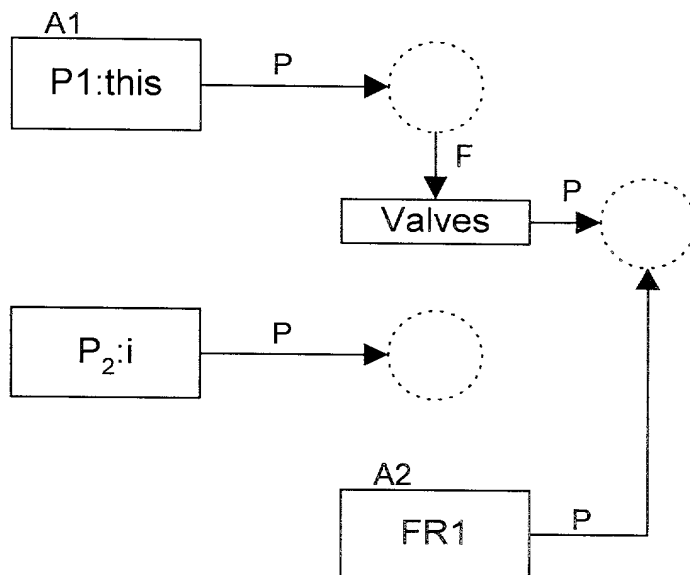
FIG. 26B

FIG. 25C



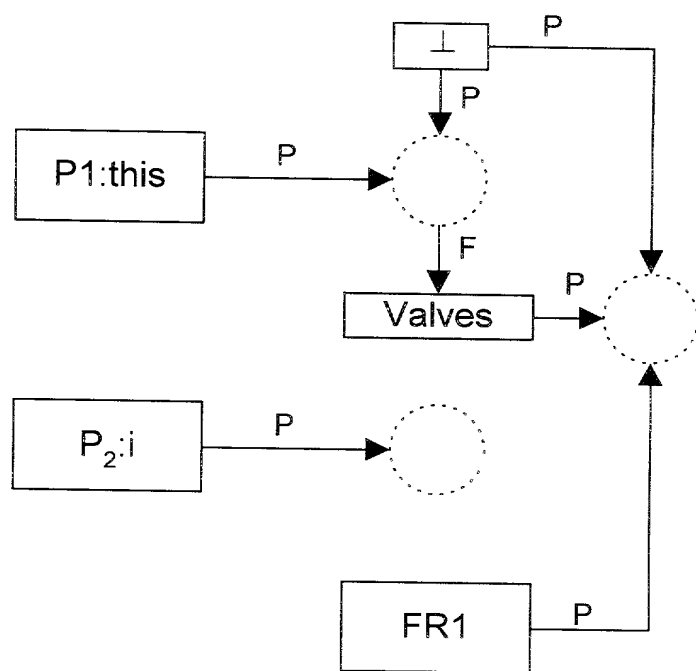
Before call to `BrassInstrument.getValue`

FIG. 27A



Before call to `BrassInstrument.depressValve`

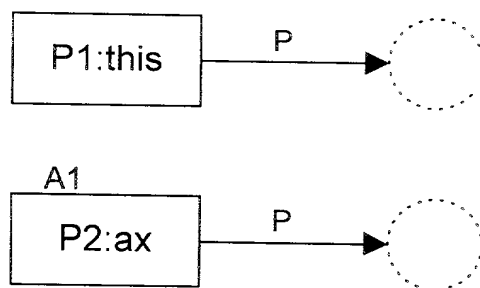
FIG. 27B



Before call to Intensity.tautness

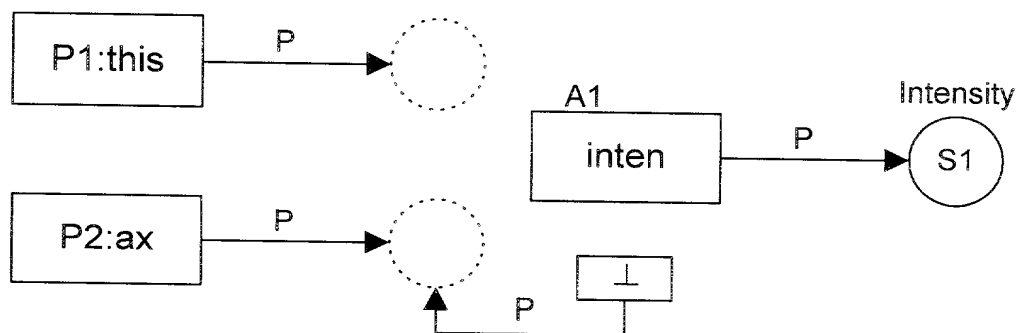
FIG. 27C

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104250 1005860



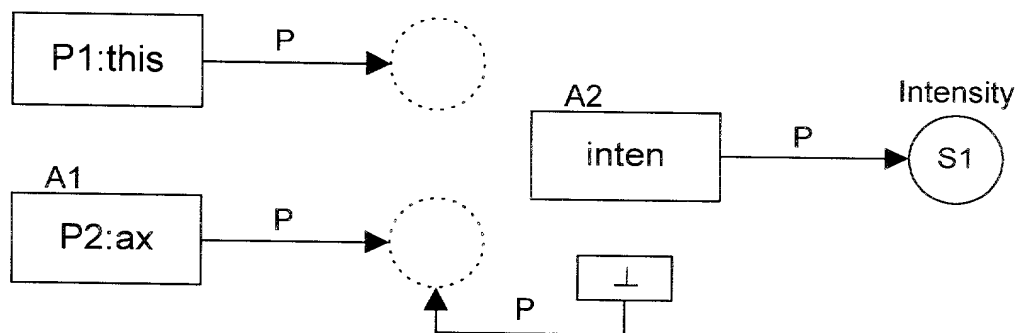
Before call to Instrument.identify

FIG. 28A



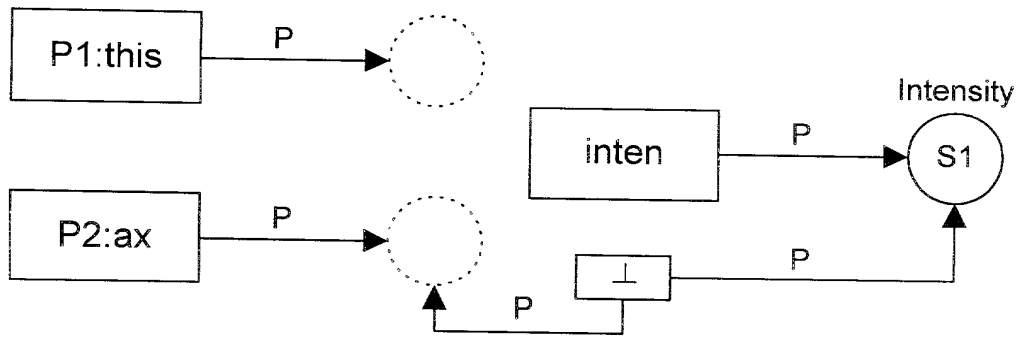
Before call to Instrument.<init>

FIG. 28B



Before call to Instrument.loudHighNote

FIG. 28C



Final Connection Graph

FIG. 28D

09853004_052403
F04290_F0058860

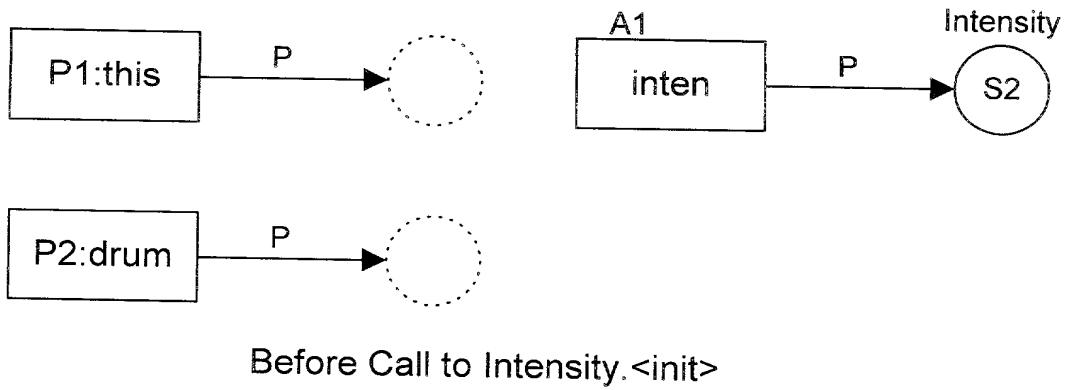


FIG. 29A

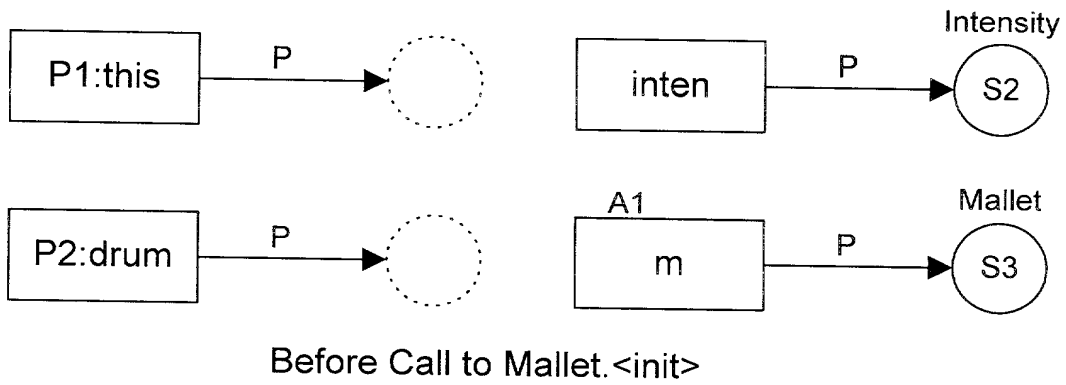


FIG. 29B

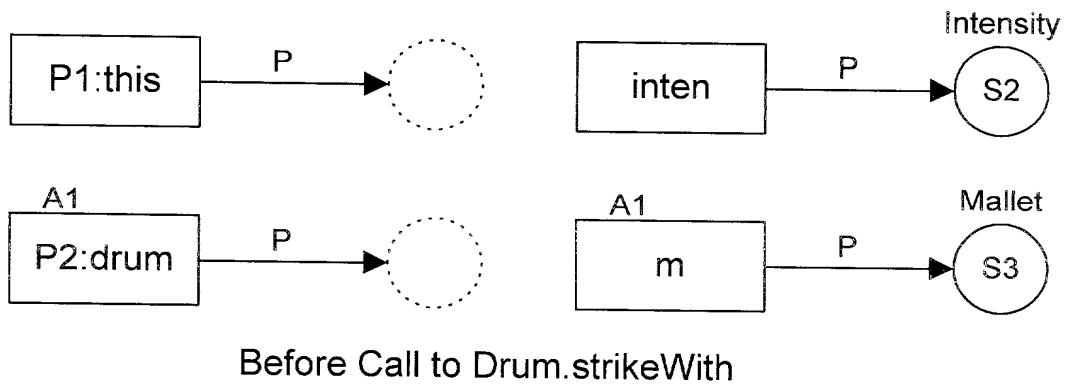
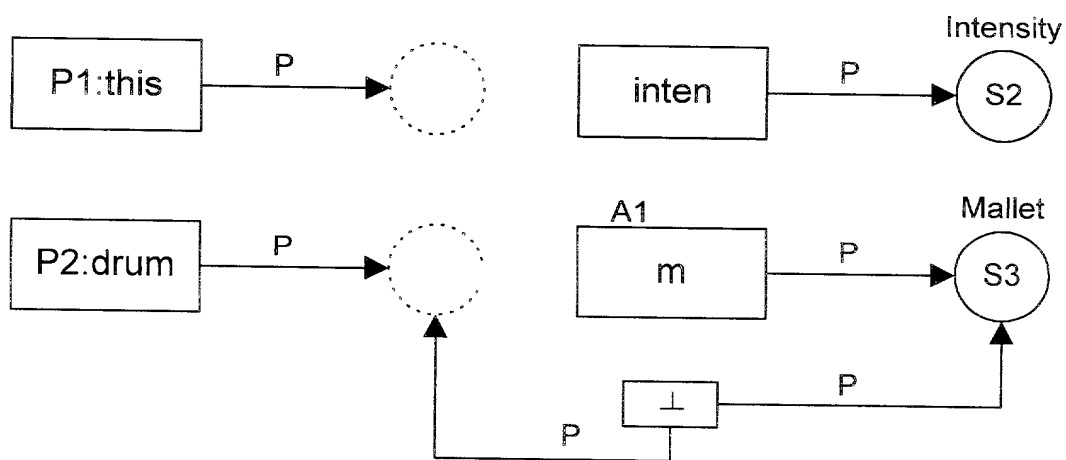


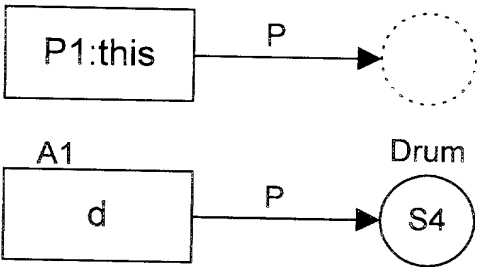
FIG. 29C



Final Connection Graph

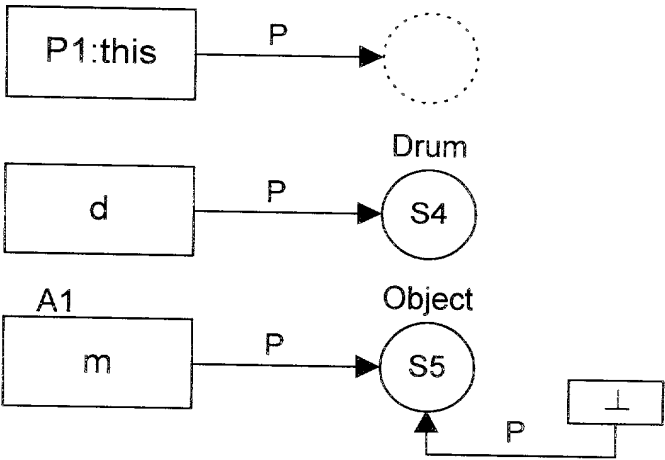
FIG. 29D

FIG. 29D



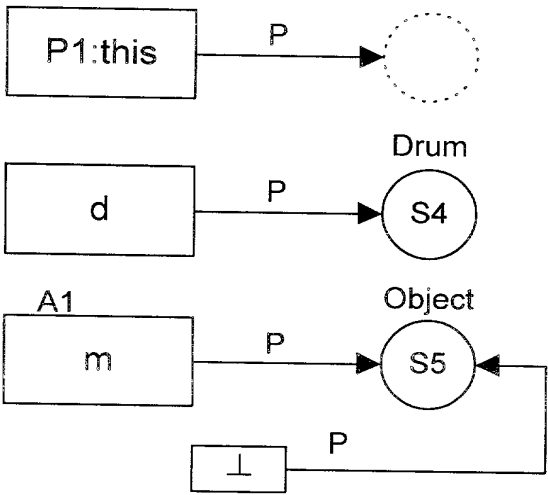
Before Call to Drum.<init>

FIG. 30A



Before Call to Mallet.<init>

FIG. 30B



Final Connection Graph

FIG. 30C

FIG. 30A

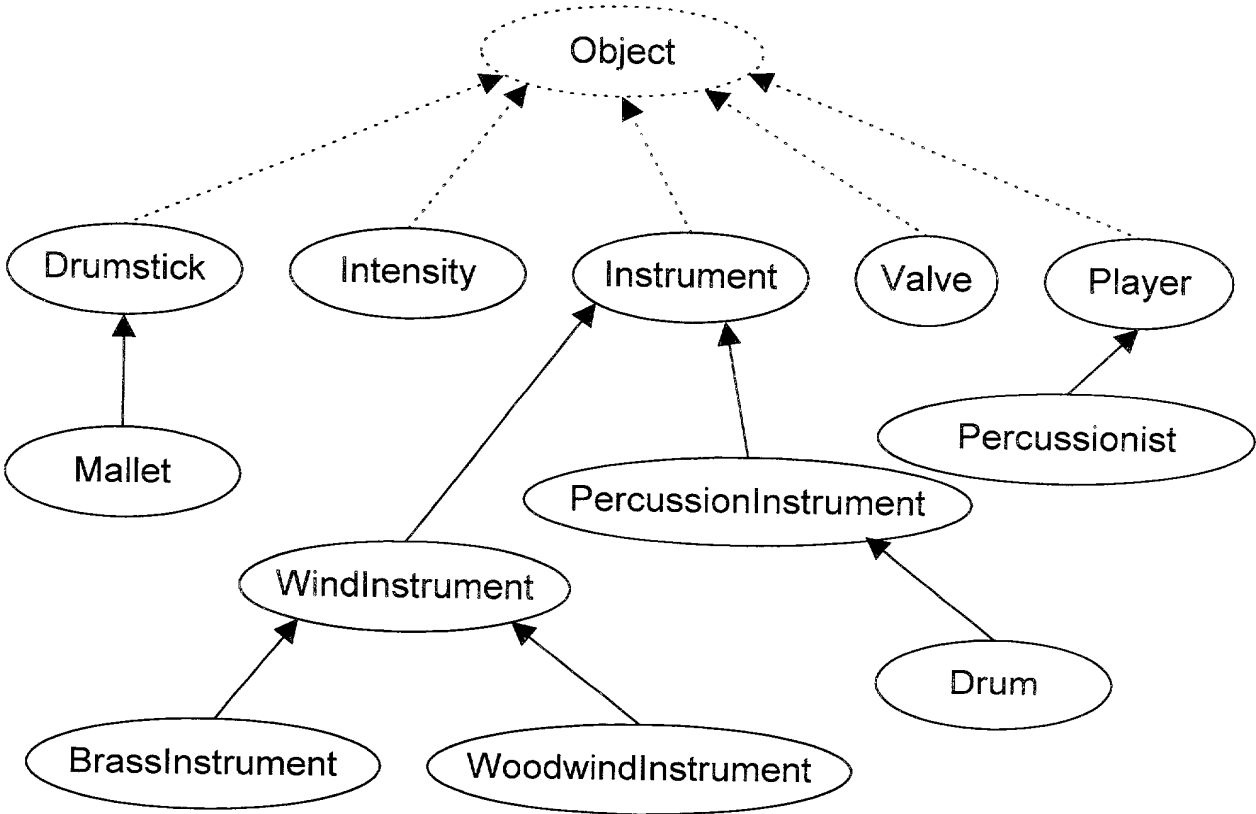


FIG. 31

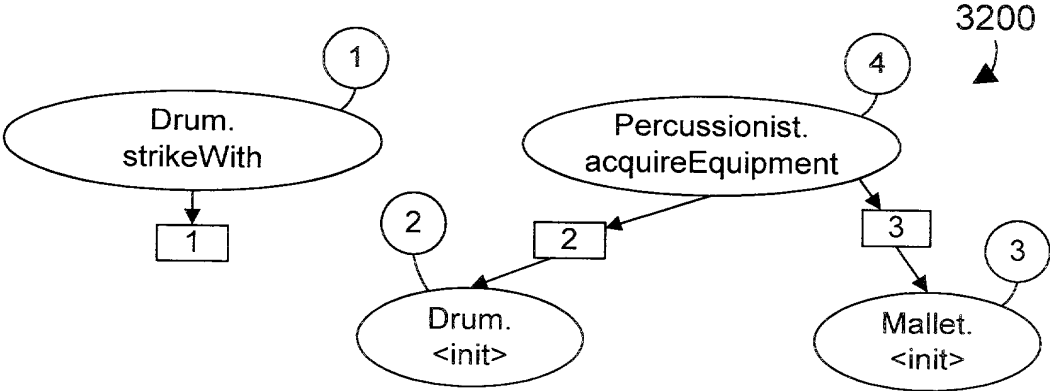
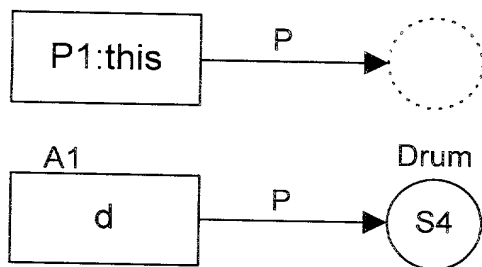
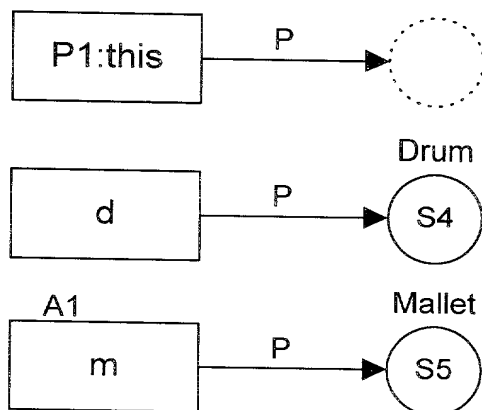


FIG. 32



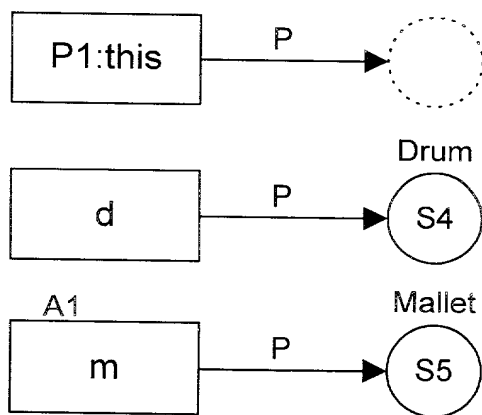
Before Call to Drum.<init>

FIG. 33A



Before Call to Mallet.<init>

FIG. 33B



Final Connection Graph

FIG. 33C

FIG. 33A